



2010 YEARLY OPERATIONAL PLAN



Submitted by:
NSTAR Electric & Gas

Prepared by:
 Vegetation Control Service, Inc.

Submitted: January 2010

SUMMARY

In compliance with the Massachusetts Department of Agricultural Resources' Rights-of-Way Regulations (333 CMR 11.00), this Yearly Operational Plan (YOP) informs municipalities of NSTAR Electric's intent to utilize state recommended herbicides on electric rights-of-way (ROW) in 2010. ROWs treated in 2009 are included in this YOP in case they need a "touch-up" spot treatment.

The application of herbicides will be carried out within the specifications of our Integrated Vegetation Management program, outlined in our five year Vegetation Management Plan.

This YOP identifies target vegetation; the affected rights-of-way and towns; the herbicides, rates and methods of application; alternative control methods; the individual responsible for supervising the YOP, and the qualified contractors that will perform the application. It explains how sensitive areas; buffer zones and sites where herbicides are either restricted or not permitted are identified, appropriately marked, treated and protected. It addresses procedures for the mixing, handling and loading of herbicide concentrates. Finally, it includes Herbicide Fact Sheets and Labels, a list of emergency resources and telephone numbers, and maps marked with known Sensitive Areas.

The YOP process provides for a forty-five day public review and comment period, in conjunction with the twenty-one day notification period of the Municipal Rights-of-Way Notification Letter. These review periods give communities an opportunity to provide information that will help identify additional areas that may require specific precautions or protection. Finally, notice will be published in general circulation newspapers at least 48 hours before the scheduled application.

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I. INTRODUCTION

In compliance with Commonwealth of Massachusetts' Rights-of-Way Vegetation Management Regulations (333 CMR 11.00) NSTAR Electric's Yearly Operational Plan (YOP) details our vegetation management program for 2010. This YOP is consistent with the terms and procedures set forth in NSTAR's 2008-2012 five-year Vegetation Management Plan (VMP) per 333 CMR 11.05; with the Massachusetts Pesticide Control Act (Chapter 132B); with all pertinent clauses in Chapter 85 of the Acts of 2000; with the Massachusetts Endangered Species Act (MESA; MGL c. 131 A) and regulations (321 CMR 10.00); 310 CMR 10.00 and 310 CMR 22.00 of the Massachusetts Department of Environmental Protection, and with all acts and regulations that apply to right-of-way vegetation management.

NSTAR is the largest Massachusetts-based, investor-owned electric and gas utility delivering electricity to approximately 1.1 million electric customers in 81 municipalities transmitted over hundreds of miles of distribution and transmission power line rights-of-way (ROW) throughout the eastern, southeastern, cape and islands regions of Massachusetts. To ensure safe reliable electric service, NSTAR must keep these ROWs free from hazards and encroachments. In this effort, the vegetation on the ROW corridors must be maintained at an early stage of plant succession (herbaceous plants and shrubs).

Using the Integrated Vegetation Management Program (IVM) described in the VMP, NSTAR has converted its 25KV Distribution ROWs and is still in the process of converting its Transmission ROWs from a strictly mechanical maintenance program to an IVM program based on a 3-5 year selective herbicide application and where appropriate mechanical treatment cycle. This program allows for the safe delivery of reliable electric service and supports a healthier more diverse habitat for wildlife that depends upon early successional landscapes. (See VMP for a further description of NSTAR's three part IVM program).

II. CHAPTER 132B AND 333 CMR 11.00

The purpose of this chapter is to conform the laws of the commonwealth to the Federal Insecticide, Fungicide, and Rodenticide Act, Public Law 92-516, as amended, and the regulations promulgated thereunder and to establish a regulatory process in the commonwealth. The exclusive authority in regulating the labeling, distribution, sale, storage, transportation, use and application, and disposal of pesticides in the commonwealth shall be determined by this chapter. (*MGL 132B, Section 1*)

Chapter 132b (Massachusetts Pesticide Control Act) was created to ensure a clear and uniform set of standards for the entire Commonwealth of Massachusetts ***in order to protect the public from the negative impacts that arise from fragmented, decentralized, sets of standards***. In this effort, the Commonwealth, through the Department of Agricultural Resources (DAR) retains the sole right to regulate the use of pesticides, including herbicides, throughout Massachusetts. DAR takes this responsibility extremely seriously and the regulations promulgated from Chapter 132b are stricter than Federal standards.

The purpose of 333 CMR 11.00 is to establish a statewide and uniform regulatory process which will minimize the uses of, and potential impacts from herbicides in right of way on human health and the environment while allowing for the benefits to public safety provided by the selective use of herbicides (*333 CMR 11.01*).

333 CMR 11.00 is the most comprehensive rights of way regulation in New England. It requires an Integrated Pest Management (in this case IVM) approach to right of way vegetation management; the establishment of standards and procedures to prevent unreasonable risks to humans or the environment, and a multi-layered system of public and municipal notification that requests input about environmentally and culturally sensitive areas. All of this is outlined in NSTAR's VMP, annual YOPs, *The Environmental Monitor* Notice, 21 day notification, Public Water Supplier notification and 48 hour newspaper notice which serve as guides for the public, state and municipal officials, vegetation management contractor and NSTAR personnel.

To ensure compliance with Chapter 132b and 333 CMR 11.00, DAR performs routine inspections of rights-of-way treatment crews, retains chemists, and perform further tests before approving a limited list of herbicides approved for use in Sensitive Areas (pursuant to 333 CMR 11.04 (1)(d)).

As detailed in the VMP and YOP, NSTAR's IVM program strictly adheres to all the requirements of Chapter 132b and 333 CMR 11.00. NSTAR only retains herbicide application treatment contractors that hold Massachusetts' certifications and licenses to apply pesticides, which require ongoing training to maintain. All Sensitive Areas (see section V) are treated appropriately using either mechanical treatment methods or Commonwealth of Massachusetts recommended herbicides for use in Sensitive Areas. In fact, NSTAR only uses these recommended herbicides on the entire length and cleared width of its ROW corridors.

Beyond the requirements of 333 CMR 11.00, NSTAR also notifies "abutters" (houses and businesses that abut the rights-of-way being treated in that year) within view of the ROWS before treatments begin. Treatment contractors are required to leave door hangers or talk personally with abutters which allow the contractor to answer site specific questions, identify private wells and help explain the program.

III. LOCATION OF INTENDED TREATMENTS

In 2010 NSTAR plans on completing herbicide applications on 31 transmission and distribution ROWs as listed in Table I. Table II includes the 19 ROWs treated in 2009 which might need "touch-up" spot treatments. Table III is a list of the 55 municipalities through which at least one of the ROWs scheduled for a 2010 IVM treatment pass. Table IV is a list of the 26 towns through which at least one 2009 ROW passes that might need a "touch-up" spot treatment. Please note that some of these towns appear on both lists and the total number of municipalities is 66 (see Appendix I. Maps).

A. Integrated Vegetation Management Herbicide Treatments:

Table I. 2010 Rights-of-Way:

ROW Number	Name
25 KV Distribution Rights-of-Way	
NB Bus Park*	2-103-103 & 2-101-101
206*	R/W 205 - R/W 208, Marshfield
207*	Duxbury-Brant Rock
208*	Marshfield-Seaview
209*	East Marion Sub - Tempest Knob Sub
211*	Horse Pond Tap - Buzzards Bay Sub
214*	N Plymouth Sub - Cordage Tap
301*	Wellfleet Bulk – Truro
302*	Hyannis - Harwich
303*	Harwich - Goose Pond
309*	Barnstable Tap
310*	Otis Sub – Hatchville
311*	North Falmouth Tap
312*	Osterville Tap
319*	Goose Pond – Orleans
BWW*	Barnstable Water Well Tap
Transmission Rights-of-Way	
3	455 Framingham - Sta. 513 Grid Southboro
4 -A,E,W	Sta. 447 Walpole - Sta. 65 Medway - Grid tie, Sta. 146 Walpole - Sta. 150 Weymouth
4B	Canton Tap
4C	Norwood Tap
9	R/W 5 - Sta.375 Dragon Court
10	Sta. 447 Walpole - Sta. 148 Needham
16	Tap to Whitman
140	Acushnet to Tremont
143	Montaup Tap
342E*	Quaker Meeting House Rd. - Shoot Flying Hill Rd.
347	Harwich Tap
349	Orleans – Wellfleet
380	EHV Canal-Bourne
381	345 Cross Over

*Scheduled for both herbicide application and side trimming treatments

Table II. List of Potential Touch-up Rights-of-Way from 2009 YOP:

ROW Number	Name
25 KV Distribution Rights-of-Way	
Water Works	New Bedford water works R/W –Freetown
146	Fairhaven to Marion
202	West Pond- Manomet 4kV sub
203	West Pond- East Carver Sub
204	S Ply Sub - R/W 202
205	Dux Sub - Pine Street, Marshfield
305	West Chop - Vineyard Haven
306	Vineyard Haven - Edgartown <i>forest tap</i>
Transmission Rights-of-Way	
5	Sta. 211 - Woburn - Grid Billerica
14	R/W 9 - I93 Reading T/L
18	Sta. 488 Chelsea - Grid Revere Line
141	Wing Lane – Arsene
142	Crystal Spring Tap
145	Tremont to Canal
180	EHV- Canal to Pilgrim Tap
242	Kingston – Whitman
280	Pilgrim Tap-Bridgewater
340	Bourne - Falmouth Tap
350	Bourne Sw - Canal Crossing

Tables III & IV: List of Affected Municipalities:

Table III. 2010 Municipalities:		
Acushnet	Falmouth	Plympton
Ashland	Framingham	Randolph
Avon	Franklin	Rochester
Barnstable	Halifax	Sandwich
Bellingham	Hanson	Sharon
Boston	Harwich	Sherborn
Bourne	Holbrook	Stoughton
Braintree	Kingston	Truro
Brewster	Marion	Walpole
Burlington	Marshfield	Wareham
Canton	Medfield	Wellfleet
Chatham	Medway	Westwood
Dartmouth	Millis	Weymouth
Dedham	Natick	Whitman
Dennis	Needham	Wilmington
Dover	New Bedford	Woburn
Duxbury	Norfolk	Yarmouth
East Bridgewater	Orleans	
Eastham	Plymouth	

Table IV. Municipalities with 2009 Rights-of-Way that might need a “touch-up” treatment:		
Acushnet#	Fairhaven	Oak Bluffs
Bourne#	Falmouth#	Pembroke
Bridgewater	Freetown	Plymouth#
Burlington#	Hanson#	Tisbury
Carver	Kingston#	Wareham#
Chelsea	Marion#	Whitman#
Duxbury#	Marshfield#	Wilmington#
East Bridgewater#	Mattapoisett	Woburn#
Edgartown	Middleborough	

#also has a right(s)-of-way scheduled for treatment under the 2010 YOP

IV. IDENTIFICATION OF TARGET VEGETATION FOR HERBICIDE APPLICATIONS

Pursuant to the policy and intent set forth in NSTAR's VMP, all vegetation must be removed that obscures the ROW corridors and grows tall enough to interfere with the safe, efficient and legal operation of an electrical power line. As a rule, the targets are woody vegetation species that are *capable* of maturing over 12 feet in height or that can impede access to the ROW since NSTAR must keep all vegetation under the wire zone well below 12 feet in height.

The primary target is all trees species within the cleared width of the ROW; except in Priority Habitats that are under the purview of NHESP which will be treated on a case by case basis.

Targets include, but are not limited to:

Alder	Birch	Pine
Aspen	Cherry	Maple
Beech	Hemlock	Oak

There are more non-target vegetation species on an electric ROW than targets. In fact, ROW's are one of the primary early successional plant communities remaining in New England. As a result, many plant and animal species use ROWs as their homes, feeding grounds or nurseries. Certain plant species, therefore, are generally encouraged on the ROW through the use of an IVM program:

- Most herbaceous growth is acceptable and encouraged
- Shrubs less than 12 feet in height are not usually targets *unless* due to their location or attributes they interfere with the function of the ROW.

Certain categories of non-tree species are targets under some circumstances. Various species are targets because of their location and others are targets because of their nature:

- Poisonous, noxious and invasive species are targets due to environmental and safety concerns
- Dense woody vegetation, shrubs and vines are targets where they are capable of interfering with the inspection and maintenance of the poles, wires, and along access roads, paths and gates which need to be kept clear, especially for emergencies
- Examples of non-tree species generally considered targets, include, but are not limited to:

Multiflora Rose	Buckthorn	Sumac (poison)
Grapevines	Hawthorne	Viburnums
Virginia Creeper	Japanese Knot Weed	Blackberry
Bittersweet	Poison Ivy	Greenbriar.

V. DEFINITION, IDENTIFICATION AND TREATMENT OF SENSITIVE AREAS

Sensitive Areas are those areas within a ROW in which public health, environmental concerns or agricultural interests warrant special protection to minimize the risk of unreasonable adverse effects.

The map(s) in Appendix I are a resource and a tool for both the public and the vegetation management crews. They contain the data necessary to identify, mark and treat Sensitive Areas appropriately.

The map(s) include known Sensitive Areas available at the printing of this YOP. Some Sensitive Areas are included in the base USGS topographic maps, for example applicable Wetland Resource Areas (Rivers, Wetlands, etc.) The most current data available through MassGIS such as public water supplies, certified vernal pools and any data that NSTAR has collected to date on areas such as private wells are added on top of the USGS data. At the time of treatment, any additional Sensitive Areas collected will be added to the maps utilized by our vegetation management contractors. Please note that Zone II's and limited spray areas are not mapped since NSTAR only uses herbicides approved for use within this type of Sensitive Area in their IVM program (see below).

There is one type of Sensitive Area not included on the maps that we are not authorized to publish: the locations of the Priority Habitats of state listed species as regulated by the Natural Heritage and Endangered Species Program (NHESP) of the Division of Fisheries & Wildlife. A map layer of Priority Habitats is available to the general public at www.MassGIS.gov, but it is neither specific to areas of concern for herbicide applications nor does it include data on the individual species since the exact location and details of their habitat is protected. Please be assured that we follow all necessary precautions to stay in compliance with 321 CMR 10.00 and this YOP was approved by NHESP.

Prior to any herbicide application, Sensitive Areas will be identified and when necessary marked in the field by an experienced vegetation management treatment crew point person, by individuals trained in the identification of Sensitive Areas that require the use of GIS (geographic information systems) and GPS equipment, and/or by a NHESP approved botanist trained in the delineation of state-listed species.

Two simple descriptions guide the complex identification of the Sensitive Areas listed in 333 CMR 11.02: *Readily identifiable in the field* and *Not readily identifiable in the field*:

- A. *Readily identifiable in the field areas* will be treated and marked according to all applicable restrictions listed in 333 CMR 11.00 and NSTAR's 5-year VMP. For example, these include no-chemical Sensitive Areas such as the 10 ft. buffer from the high water mark of a river (see below).
- B. *Not readily identifiable in the field areas* are identified by the use of the data marked on our maps and additional data collected in the YOP and notification processes before the time of treatment. For examples: Priority Habitats or within 400' of tributaries to a Class A water source (see below).

NSTAR and contractor personnel assigned the task of identifying Sensitive Areas in the field will use the following sources and methods:

- A. Massachusetts Department of Environmental Protection (DEP) water supply maps and GIS mapping layers available through MassGIS.
- B. Massachusetts Department of Agricultural Resources (DAR) GIS maps and lists of identified private wells along the ROW.
- C. Correspondence and input from municipalities within the consecutive forty-five day YOP and twenty-one day Municipal ROW Notification Letter review and comment periods and the 48 hour newspaper notification.
- D. Correspondence and input from NSTAR's abutter notification procedure.
- E. A point person who precedes the treatment crew verifying identified Sensitive Areas and any additional areas that may require special precautions.

The following section details some of the Sensitive Areas that require special attention, particularly those that are classified as either no spray or *not readily identifiable in the field*:

A. Limited Spray Areas:

Quote from 333 CMR 11.02, the following need to be identified in the field, require the use of herbicides on the *DAR Rights-of-Way Sensitive Area Materials List*, and time restrictions between herbicide applications (see Appendix II), Sensitive Area Table). Please note that for IVM herbicide applications, NSTAR only uses Sensitive Area approved herbicides on our entire ROW system:

- (a) any Zone II or IWPA
- (b) a distance of between 100 feet and 400 feet of any Class A Surface Water Source
- (c) a distance of between 10 and 200 feet of any tributary or associated surface water body where the tributary or associated surface water body runs outside the Zone A for the Class A surface water source
- (d) a lateral distance of between 100 and 200 feet for 400 feet upstream, on both sides of the river, of a Class B Drinking Water Intake
- (e) a distance of between 50 and 100 feet of any identified Private Well
- (f) a distance of between 10 and 100 feet of any Wetlands or Water Over Wetlands
- (g) a distance of between 10 feet from the mean annual high water line of any river and the outer boundary of the Riverfront Area
- (h) a distance of between ten feet from any Certified Vernal Pool and the outer boundary of any Certified Vernal Pool Habitat
- (i) a distance of 100 feet of any Agricultural or Inhabited Area.

Please Note that “(f)” is modified by the DAR (formerly Department of Food and Agriculture) Decision, dated October 12, 1995, concerning the wetland impact study conducted pursuant to 333 CMR 11.04(4)(c)(2). According to the Decision, NSTAR uses herbicides within wetlands except on or within 10 feet of standing or flowing water (see Appendices in VMP; item “g” in the no-spray areas below was removed from the no spray list for utilities because it does not apply for the same reason).

B. No-Spray Areas:

Again, quoting from 333 CMR 11.02 the following no-spray areas need to be identified:

No-Spray Area, any area that is both within a Right-of-Way and within:

- (a) any Zone I
- (b) 100 feet of any Class A Surface Water Source
- (c) 100 feet of any tributary or associated surface water body where the tributary or associated surface water body runs within 400 feet of a Class A surface water source
- (d) 10 feet of any tributary or associated surface water body where the tributary or associated surface water body is at a distance greater than 400 feet from a Class A surface water source
- (e) a lateral distance of 100 feet for 400 feet upstream, on both sides of the river, of a Class B Drinking Water Intake
- (f) 50 feet of any identified Private Well [within 100 feet of the ROW]
- ...
- (h) 10 feet of the mean annual high-water line of any river
- (i) 10 feet of any Certified Vernal Pool.

C. Identification and Treatment of Private Drinking Water Supplies

No herbicide treatments will take place within fifty feet of any identified private wells within one hundred (100) feet of the ROW. Therefore, in accordance with 333 CMR 11.04 (2)(c), maps and lists on file at DAR were reviewed in an attempt to identify private wells within one hundred (100) feet of the ROW's.

Municipalities are also encouraged to assist in the identification process and DAR will be consulted again prior to the treatment in an attempt to keep the private drinking water supply information up-to-date.

Any identified private drinking supplies within one hundred (100) feet of a ROW will permanently recorded on appropriate maps.

D. State-Listed Species Habitat

All vegetation management activities on NSTAR ROWs will be conducted in compliance with 321 CMR 10.00. According to Section 10.14(12), "Vegetation Management must be carried out in accordance with a vegetation management plan [YOP] approved in writing by the Division [NHESP] prior to the commencement of workunder the provisions of M.G.L. c.7, § 3B." In compliance with this exemption from the permit process, a copy of NSTAR's YOP for 2010 has been approved by NHESP.

Using the confidential GIS data sent to NSTAR by NHESP, applicable Priority Habitats will be identified in the field and vegetation management treatment crews will only conduct the appropriate vegetation management activities in these Sensitive Areas. In this effort, contractors are required to train their personnel to recognize Priority Habitat using the aid of one of the following tools: paper maps, GPS coordinates and/or GIS systems.

VI. PROPOSED HERBICIDE TREATMENT METHODS

Under NSTAR's IVM program, combined with mechanical "prep-cutting," mowing and side-trimming activities, herbicide applications will be applied on foot using selective low pressure foliage backpacks and cut stump or basal treatments. Experienced, Massachusetts licensed applicators will perform the selective herbicide treatments under the direct on site supervision of a certified applicator as required by Chapter 132B.

NSTAR's herbicide program is a selective program scheduled to sustain acceptable vegetation control at minimal application rates. Using backpack sprayers, very small amounts of herbicide are applied directly to the leaves, stumps or bark of the target vegetation. The average per acre rate of herbicide mix for NSTAR's foliar program are under 5 gallons per acre and the actual amount of applied active ingredient is in the pints per acre range. This per acre application rate will decrease even further as the number of target species decrease over the years, while the time between treatments will increase compared to mechanical only programs.

NSTAR also chooses herbicide formulations that are low in acute toxicity, do not bio-accumulate and, as applied, have a short half-life with low soil mobility (see VMP, Bibliography). Above and beyond the review by the Federal EPA, these herbicides are all carefully reviewed jointly by DAR and the Massachusetts Department of Environmental Protection for use in "limited spray" sensitive areas (including Zone IIs). Then NSTAR takes this one step further and only uses sensitive area approved herbicides on their entire right-of-way system.

A. Methods:

NSTAR and contract personnel will utilize the most appropriate technique for the vegetation species, height, density, site and mandated restrictions. These methods as described in detail in NSTAR's 5-year VMP are briefly reviewed below:

Low Volume Foliage Techniques utilize hand-operated pumps or motorized, backpack sprayers. The motorized, backpack sprayer produces an air current that delivers the herbicide mixture from the portable spray tank to the target vegetation. The hand-pump sprayer uses a column of water. In both cases, the amount of herbicide solution applied only dampens or lightly wets the target vegetation.

Low-Volume Stem Basal: the selective application of herbicides to the lower 6"-8" of the plant stem. The herbicide concentration is applied with low-pressure, backpack sprayers with special wand attachments and positive shut-off nozzle tips with small orifices.

Cut Stump Surface Treatment (CST): the application of an herbicide mixture to the cut surface of a stump immediately following or during a cutting operation. Application equipment includes low-volume, backpack, hand-pump sprayers; hand held squirt bottles; paintbrushes, or sponge applicators.

B. Guidelines:

1. All Sensitive Area restrictions will be followed
2. Foliar and Basal treatments are used within the cleared width of the ROW for tree and shrub target species below 12 ft. in height

3. CST treatments are used in conjunction with hand-cutting and in situations including but not limited to: trees and shrubs that cannot be foliar treated, at road buffers, and around structures such as poles and gates.
4. Only mechanical treatment methods will be used in *no spray* Sensitive Areas, including but not limited to hand cutting, trimming and mowing.

E. Treatment of Wetlands

Herbicide applications in wetlands will be performed in accordance with 333 CMR 11.04 (4)(c)(2) relative to ROW management. Targets will be selectively treated with herbicides on the DAR's *Sensitive Area Material List* and will not be applied within ten (10) feet of standing or flowing water.

F. Treatment of State-Listed Priority Habitats

All vegetation management activities will be completed in compliance with the Massachusetts Endangered Species Act (MESA; MGL c. 131 A) and its regulations, 321 CMR 10.00.

VII. PROPOSED HERBICIDES, CARRIERS, ADJUVANTS AND RATES

Only Commonwealth of Massachusetts recommended herbicides listed below for use in Sensitive Areas—pursuant to 333 CMR 11.04 (1)(d)—will be used on the entire length and cleared width of NSTAR's ROW corridor, in compliance with all labeled directions.

Table V. Tank Mixes for Low Volume Foliage Applications:

Herbicides & Adjuvants*	Active Ingredient	EPA Registration Number(s)	Mix Concentration (per 100 gals. water)	Estimated Application Rate Per Acre
Accord Concentrate	Glyphosate	62719-324	3-5%	16-128 oz.
Krenite S	Fosamine	352-395	6-10%	32-128 oz.
Escort XP	Metsulfuron-Methyl	352-439	2-4 oz.	0.125-0.8 oz.
Arsenal or Polaris†	Imazapyr	241-346 241-346-228	0.125%-.5%	2-8 oz.
Arsenal Powerline‡	Imazapyr	241-431	0.125%-.5%	2-8 oz.
Induce, Clean Cut, or Aqua Fac or equivalent surfactant§	n.a.**	n.a.	0.125%-1%	1-16 oz.
Point Blank, Stay Put Plus or equivalent drift retardant	n.a.	n.a.	6-64 oz.	1-2 oz.
Carrier: Water	n.a.	n.a.	n.a.	n.a.

Table VI. Tank Mixes for Cut Surface Treatment (CST) Applications:

Herbicides & Adjuvants	Active Ingredient	EPA Registration Number(s)	Mix Concentration (per 100 gals. water)	Estimated Application Rate Per Acre
Accord Concentrate	Glyphosate	62719-324	40% to 50%	Per density of target stems
Arsenal or Polaris	Imazapyr	241-346 241-346-228	3%-5% (mixed with Accord Concentrate)	Per density of target stems
Arsenal Powerline	Imazapyr	241-431	3%-5% (mixed with Accord Concentrate)	Per density of target stems
Carriers: Water or Windshield Washing Fluid	n.a.	n.a.	n.a.	n.a.

* Accord Concentrate or Krenite S are most often applied in combination with Escort and Arsenal.

† Imazapyr will not be applied on the same right-of-way in 2 consecutive years.

‡ Arsenal Powerline is currently being considered for approval in Sensitive Areas and will not be used in Sensitive Areas until approved.

§ Equivalent surfactants, drift retardants and basal oils will only be used in case those listed are no longer available or more effective alternatives become available.

** n.a.—not applicable

Table VII. Tank Mixes for Low-Volume Basal Applications:

Herbicides & Adjuvants	Active Ingredient	EPA Registration Number(s)	Mix Concentration (per 100 gals. water)	Estimated Application Rate Per Acre
Garlon 4	Triclopyr	62719-40	20%-30%	0.5-3 pints
Garlon 4 Ultra ^{††}	Triclopyr	62719-527	20%-30%	0.5-3 pints
Carrier: Arborchem's low odor basal oil or equivalent	n.a.	n.a.	70%-80%	24-144 oz.

^{††} Garlon 4 Ultra is currently being considered for approval in Sensitive Areas and will not be used in Sensitive Areas until approved.

VIII. ALTERNATIVE MECHANICAL CONTROL TECHNIQUES

Areas not treated or prohibited from herbicide use, such as protective buffers for Sensitive Areas, will be maintained mechanically according to the specifications in the VMP. The following is a brief review of these methods:

Hand Cutting: the use of chain and brush saws to remove the stem and/or branches from the plant's root system; usually combined with CST except in no-chemical restricted areas.

Mowing: the cutting, severing or shattering of vegetation by large rotary or flail mowers

Side Trimming: side pruning or removal of encroaching tops and/or branches of trees growing on or near the ROW's and access roads.

IX. COMPANIES THAT WILL PERFORM THE HERBICIDE TREATMENT

Vegetation Control Service, Inc.
2342 Main Street
Athol, MA 01331
(978) 249-5348

Lewis Tree Service, Inc
300 Lucius Gordon Drive
West Henrietta, NY 14586
(585) 436-3208

Lucas Tree
636 Riverside St.
Portland, ME 04104
(888) 845-7870

X. INDIVIDUAL RESPONSIBLE FOR SUPERVISING THE YOP

William Hayes, Senior Arborist
NSTAR Electric & Gas Corporation
Vegetation Management Department
One NSTAR Way, SE-370
Westwood, MA 02090-9230
781-441-3932 (office)

XI. HERBICIDE FACT SHEETS

Herbicide Fact Sheets prepared and provided by the DAR, explain technical information relative to the herbicide concentrates proposed for use during the 2010 treatment cycle. These are included in Appendix III, along with the manufacturer's labels in Appendix IV.

XII. PROCEDURES FOR HANDLING, MIXING AND LOADING HERBICIDE CONCENTRATES

All herbicides will be handled, mixed and applied strictly by *Label Instructions* and in compliance with all applicable federal and state laws and regulations. All herbicide mixing should be done at the contractor's facilities and extreme care shall be exercised during all mixing, handling and loading in order to prevent careless spills or splashes. No herbicide concentrates will be mixed, handled or loaded on a ROW within one hundred (100) feet of a Sensitive Area.

XIII. EMERGENCY RESOURCES

NSTAR contracts with independent, professional, certified herbicide applicators that are responsible for the containment, clean up and reporting of chemical spills or accidents. The following is, therefore, only a guide to the information sources that *shall be* available to the treatment crew in the event of a chemical spill or emergency situation:

A. Technical Reference Materials:

- a. Product Label
- b. Product Material Safety Data Sheet (MSDS)
- c. Product Fact Sheet, if available

B. Table VIII. Herbicide Manufacturers:

MANUFACTURER	TELEPHONE NUMBER	SPECIAL INSTRUCTIONS
BASF Corporation	800-832-4357	
Dow Agro Sciences	800-992-5994	
E.I. du Pont de Nemours and Company	800-441-3637	Medical Emergencies
Monsanto	314-694-4000	
Nufarm	877-325-1840	Medical Emergencies

C. Table IX. State Agencies:

STATE AGENCY	TELEPHONE NUMBER	SPECIAL INSTRUCTIONS
Massachusetts Pesticide Bureau	617-626-1700	A.S.A.P. (within 48 hours)
Massachusetts Department of Environmental Protection, Division of Hazardous Waste	Main Office: 617-292-5500	For emergencies involving reportable quantities of hazardous materials; required info: City/town, street address, site name (if applicable), material
	Southeast Region: 508-946-2700	
	Northeast Region: 978-694-3200	
	Central Region: 508-792-7650	
Massachusetts Dept of Public Health, Bureau of Env.Health Assessment Toxilogical Program	617-624-5757	
Massachusetts Poison Information Centers	800-682-9211	For medical emergencies involving suspected or known pesticide poisoning symptoms

D. Table X. Emergency Services:

EMERGENCY SERVICE	TELEPHONE NUMBER	SPECIAL INSTRUCTIONS
Massachusetts State Police, Central Office	617-566-4500 or 911	
Local Fire / Police Dept.	911	
ChemTrec	800-424-9300	
Clean Harbors	800-OIL-TANK	
Pesticide Hotline	800-858-7378	PST: 6:30 am – 4:30 pm, Web: www.NPIC.orst.edu

E. NSTAR's contact in the case of a spill or accident is:

System Control
NSTAR Electric & Gas Corporation
One NSTAR Way
Westwood, MA 02090-9230
(617)-541-7858

F. **Table XI. Local Emergency Numbers:**

Emergencies Services for All Municipalities: 911

Town	Board of Health	Town/City Hall	Town	Board of Health	Town/City Hall
Acushnet	508-998-0275	508-998-0200	Marion	508-748-3530	508-748-3500
Ashland	508-881-0100 x681	508-881-0100 x611	Marshfield	781-834-5558	781-834-5563
Avon	508-588-0414	508-588-0414	Mattapoisett	508-758-4112	508-758-4100
Barnstable	508-862-4644	508-862-4610	Medfield	508-359-8505 x604	508-359-8505
Bellingham	508-966-5820	508-966-5805	Medway	508-533-3206	508-533-3200
Boston	617-534-5395	617-635-4500	Middleborough	508-946-2408	508-946-2405
Bourne	508-759-0615 x25	508-759-0600	Millis	508-376-7042	508-376-7040
Braintree	781-794-8090	781-794-8000	Natick	508-647-6460	508-647-6400
Brewster	508-896-3701 x120	508-896-3701	Needham	781-455-7523	781-455-7500
Bridgewater	508-697-0903	508-697-0919	New Bedford	508-991-6290	508-979-1400
Burlington	781-270-1955	781-270-1600	Norfolk	508-528-7747	508-528-1408
Canton	781-821-5021	781-821-5000	Oak Bluffs	508-693-3554 x117	508-693-3554 x119
Carver	508-866-3420	508-866-3400	Orleans	508-240-3700 x450	508-240-3700 x415
Chatham	508-945-5165	508-945-5100	Pembroke	508-293-2718	508-293-7211
Chelsea	617-889-8260	617-889-8200	Plymouth	508-747-1620 x118	508-747-1620 x106
Dartmouth	508-910-1804	508-910-1813	Plympton	781-585-7000	781-585-2700
Dedham	781-751-9220	781-751-9100	Randolph	781-961-0924	781-961-0900
Dennis	508-394-8300	508-394-8300	Rochester	508-763-3871 x15	508-763-3871 x10
Dover	508-785-0032 x232	508-785-0032	Sandwich	508-888-4200	508-888-5144
Duxbury	781-934-1105	781-934-1100	Sharon	781-784-1510	781-784-1515
East Bridgewater	508-378-1612	508-378-1601	Sherborn	508-651-7852	508-651-7850
Eastham	508-867-0343	508-867-6769	Stoughton	781-344-6960	781-341-1300 x163
Edgartown	508-627-6120	508-627-6100	Tisbury	508-696-4290	508-696-4200
Fairhaven	508-979-4022	508-979-4023	Truro	508-349-7004 x24	508-349-7004 x10
Falmouth	508-495-7485	508-548-7611	Walpole	508-660-7320	508-660-7300
Framingham	508-532-5470	508-532-5400	Wareham	508-291-3100 x3197	508-291-3100
Franklin	508-532-5490	508-532-5400	Wellfleet	508-349-0308	508-349-0300
Freetown	508-644-2201	508-644-2203	Westwood	781-320-1027	781-326-6450
Halifax	781-293-6768	781- 293-7970	Weymouth	781-340-5008	781-335-2000
Hanson	781-293-3138 x122	781-293-2131 x100	Whitman	781-618-9755	781-618-9701
Harwich	508-430-7509	508-430-7513	Wilmington	978-658-4531	978-658-3311
Holbrook	781-767-3030	781-767-4312	Woburn	781-932-4407	781-932-4400
Kingston	781-585-0503	781-585-0500	Yarmouth	508-398-2231 x245	508-398-2231